

## **REMARKS**

**[0003]** Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-35 are presently pending. Claims amended herein are 1-35. Claims withdrawn or cancelled herein are none. New claims added herein are none.

### **Statement of Substance of Interview**

**[0004]** The Examiner graciously spoke with me—the undersigned representative for the Applicant—on June 8, 2007. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

**[0005]** During the interview, I discussed how the claims differed from the cited art. I believe that a better understanding of the application was gained. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

### **Formal Request for an Interview**

**[0006]** If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can talk about this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

**[0007]** Please contact me or my assistant to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for us, I welcome your call to either of us as well. Our contact information may be found on the last page of this response.

### **Claim Amendments**

**[0008]** Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims herein. Applicant amends claims to clarify claimed features in accordance with our telephone discussion with the examiner. Such amendments are made to expedite prosecution and quickly identify allowable subject matter. Such amendments are merely intended to clarify the claimed features, and should not be construed as further limiting the claimed invention in response to cited art.

**[0009]** The Specification supports each claim, and no new matter is presented. See paragraphs [0039]-[0056] of the Specification.

## **Substantive Matters**

### **Claim Rejections under §§ 102 and/or 103**

**[0010]** Claims 1-35 are rejected under 35 U.S.C. § 102 or § 103. In light of the amendments presented herein and the discussion during the above-discussed Examiner interview, Applicant submits that these rejections are moot. Accordingly, Applicant asks the Examiner to withdraw these rejections.

**[0011]** The Examiner's rejections are based upon the following references alone and/or in combination:

- **Becker:** *Becker*, US Patent No. 6,301,579 (issued Oct. 9, 2001);
- **Macdonald:** *Macdonald, et al.*, US Patent No. 6,006,235 (issued Dec. 21, 1999);
- **Hornick:** *Hornick, et al.*, US Patent No. 6,865,573 (issued Mar. 8, 2005);
- **In re Harza:** *Harza*, 124 U.S.P.Q. 378, C.C.P.A. Jan. 19, 1960.

### **Overview of the Application**

**[0012]** The Application describes a technology for creating a mining structure which contains processed data from a data set. This data may be used to train one or more models. In addition to the selection of data to be used by a model from a data set, processing parameters are set, in one embodiment. For example, the discretization of a continuous variable into buckets, the number of buckets, and/or the sub-range corresponding to each bucket is set when the mining structure is created. The mining structure is processed, which causes the processing and storage of data from data set in the mining structure. After processing, the mining structure can be used by one or more models. When more than one mining model has been trained on one mining structure, the initial processing need not be performed multiple times.

### **Cited References**

**[0013]** The Examiner cites Becker as its primary reference in its anticipation and/or obviousness-based rejections. The Examiner cites Macdonald, Hornick, and *In re Harza* as its secondary reference in its obviousness-based rejections.

Becker

**[0014]** Becker describes a technology for data structure visualization such as a decision table classifier. A data file based on a data set of relational data is stored as a relational table, where each row represents an aggregate of all the records for each combination of values of the attributes used. Once loaded into memory, an inducer is used to construct a hierarchy of levels, called a decision table classifier, where each successive level in the hierarchy has two fewer attributes. Besides a column for each attribute, there is a column for the record count (or more generally, sum of record weights), and a column containing a vector of probabilities (each probability gives the proportion of records in each class). Finally, at the top-most level, a single row represents all the data. The decision table classifier is then passed to the visualization tool for display and the decision table classifier is visualized. By building a representative scene graph adaptively, the visualization application never loads the whole data set into memory. Interactive techniques, such as drill-down and drill-through are used view further levels of detail or to retrieve some subset of the original data. The decision table visualizer helps a user understand the importance of specific attribute values for classification.

Macdonald

**[0015]** Macdonald describes a technology for invoking a stored procedure or user defined function in an interpreted language such as Java in a database management system capable of operating on a data processing system. The invention includes a database server associated with invocation means adapted to receive a request for invocation of a stored procedure or user defined function in a specified interpreted

language, such as Java. The invocation means is adapted to: load an interpreter for the specified language if the server is not already loaded, and setup an interprocess communication between the interpreter and the data the database server. The invocation means is adapted to return an error message to an application calling for invocation of the stored procedure or user defined function, without otherwise impeding operation of the database server.

Hornick

**[0016]** Hornick describes a technology for an application programming interface, which provides an interface including support for hierarchical and object-oriented programming languages and programming language constructs, and does not need to be integrated using additional tools. The application programming interface for providing data mining functionality comprises a first layer providing an interface with an application program, and a second layer implementing data mining functionality, the second layer comprising a mining object repository maintaining data mining metadata, a plurality of mining project objects each mining project object containing data mining objects created and used by a user, a plurality of mining session objects, each mining session object containing data mining processing performed on behalf of a user, a plurality of data mining tables, each data mining table mapping a table or a view in a database, a plurality of data transformation objects, each data transformation object defining computations or manipulations to be performed on data in the database, a plurality of data mining models, each data mining model implementing conditions and decisions, and a plurality of data mining result objects, each data mining result object generated as a result of scoring or analyzing a data mining model or an input dataset.

Harza

**[0017]**      *In re Harza* is a case from the Court of Customs and Patent Appeals which holds that “the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.”

**Anticipation Rejections**

**[0018]**      Applicant submits that the anticipation rejections are not valid because, for each rejected claim, no single reference discloses each and every element of that rejected claim<sup>1</sup> as amended. Furthermore, the elements disclosed in the single reference are not arranged in the manner recited by each rejected claim<sup>2</sup> as amended.

**Based upon Becker**

**[0019]**      The Examiner rejects claims 1-12, 20-28, and 31-33 under 35 U.S.C. § 102(b) as being anticipated by Becker. Applicant respectfully traverses the rejections of these claims. Based on the reasons given below, Applicant asks the Examiner to withdraw the rejection of these claims.

**Independent Claims 1, 7, 20, 26, and 31**

**[0020]**      Claims 1, 10, 19, 25, and 30 (claims 7, 20, 26, and 31 no longer being independent), as amended, recite (from amended claim 1, and emphasis added) a data

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<sup>1</sup> “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); also see MPEP §2131.

<sup>2</sup> See *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

mining system utilizing one or more **data sets** organized in cases including a **key value**, from which one or more mining structures are created, and one or more mining models being created from the mining structure(s) that provide results of the data mining.

**[0021]** Applicant submits that Becker does not anticipate these claims at least because it does not show or disclose the following elements as recited in claim 1 (with emphasis added):

...  
one or more data sets, **each data set storing data organized as cases**, each case comprising:

**a key value;**

...  
creating one or more mining models, wherein **one of the one or more mining models created from a mining structure is not equal to another of the one or more mining models created from the same mining structure**

**[0022]** Becker does not disclose “one of the one or more mining models created from a mining structure is not equal to another of the one or more mining models created from the same mining structure.” Furthermore, Becker does not disclose a key value. Becker is silent regarding these aspects of the claims. Finally, Becker does not disclose a data set arranged in the manner recited in claim 1. Instead, Becker teaches that “data set[s] can often times contain an extremely large amount of raw data,” (c.10, ll. 32-33).

**[0023]** Microsoft Computer Dictionary<sup>1</sup> defines **data set** as: “a collection of related information made up of separate elements that can be treated as a unit in data handling.” Becker’s data set containing raw data, is not organized into cases, and does not read on the data set of the instant application.

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<sup>1</sup> Fifth Edition, Microsoft Corporation, 2002.

**[0024]** Consequently, Becker does not disclose all of the claimed elements and features of the claims. Accordingly, Applicant asks the Examiner to withdraw the rejections of these claims.

### Dependent Claims

**[0025]** These claims ultimately depend upon the independent claims. As discussed above, the independent claims are allowable. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable. Additionally, some or all of these claims may also be allowable for additional independent reasons.

## **Obviousness Rejections**

### **Lack of *Prima Facie* Case of Obviousness (MPEP § 2142)**

**[0026]** Applicant disagrees with the Examiner's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a prima facie case have not been met.

### **Based upon Becker and Harza**

**[0027]** The Examiner rejects claims 29 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Becker. The Examiner relies on Harza's holding, stating that "duplicating parts for a multiple effect is obvious," (Action, p. 6). However, the holding of Harza is misapplied in this case.



**[0028]** In Harza the court was considering an appeal from the Board of Patent Appeals and Interferences who had affirmed final rejection of several claims of an application entitled "Water Stop." Therein, claim 1 recited (in part, with emphasis added):

A substantially water-tight structure . . . comprising a pair of adjacent masses . . . having a joint between said masses . . . and an integral water seal of flexible material sealing said joint, said seal comprising a web lying between said masses in said joint and substantially perpendicular to said face, . . . and **a plurality of . . . ribs** on opposite sides of said joint, . . . whereby said web and said relatively closely spaced ribs provide a tortuous seepage path between said water seal and said masses.

**[0029]** The cited reference in that case, disclosed the same structure as Harza's claims, including rib structure and placement, with the exception that the reference only showed one rib on each side of the web, and Harza recited a plurality of ribs on each side, *In re Harza*, 124 U.S.P.Q. 380. In Harza, the plurality of ribs on each side did not differ in any way from the single ribs on each side taught by the reference.

**[0030]** Applicant contends that the multiple mining models recited in amended claims 1, 7, 16, 25 and 31 are not like the plurality of ribs presented in Harza for the following reasons. First and foremost, the multiple mining models are not merely duplicate parts, but represent different analytical models derived from the same mining structure. As discussed in the Specification [0056], multiple mining models derived from the same mining structure, provide the benefit of reduced processing time, and eliminating possible inconsistencies.

**[0031]** Next, because the multiple mining models are not mere duplicates, their effect is not merely "a multiple effect" that would be obvious. As discussed in the Specification [0054], multiple mining models, and indeed mining structures, are

beneficial for comparison in order to evaluate results and accuracy, as well as reducing processing time, as noted above. In *Harza*, however, the plurality of ribs involved were truly duplicates of each other—having identical structure, *see Harza*, 124 U.S.P.Q. at 380.

**[0032]** Finally, Applicant notes that the reference applied in *Harza* disclosed a plurality of ribs in its structure, two ribs were taught, albeit only one on each side. Whereas in this case no embodiment of Becker discloses a mining model created from a mining structure that is not equal to another mining model created from the same mining structure (and therefore the same data set), as presented in the claims.

**[0033]** Therefore, Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of each claim with the recited feature of multiple mining models.

**[0034]** The remaining claims ultimately depend upon independent claims 1, 10, 19, 25 and 30. As discussed above, claims 1, 10, 19, 25 and 30 are allowable. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable. Additionally, some or all of these claims may also be allowable for additional independent reasons.

#### **Based upon Becker and Macdonald**

**[0035]** The Examiner rejects claims 30 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Becker in view of Macdonald. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

**[0036]** The Examiner acknowledges that Becker does not teach treating a mining structure as a first class object in a database as recited in amended claim 2. The Examiner therefore relies on Macdonald which teaches invoking a stored procedure or user defined interpreted language function in a database management system. On page 7 of the Action, the Examiner states that it would be obvious to modify Becker with Macdonald, “such that the data mining structure is treated as a first class object in a database.” Applicant, however first submits, that as noted Becker fails to disclose a key value and a data set as in the instant claims, and Macdonald does not remedy the deficiency. Furthermore, Macdonald does not teach “a first class object” as recited in the claims. Rather, Macdonald discloses converting all values “into first-class Java object handles, which have equal size and can portably be passed to one ‘varargs’ call,” (c. 5, ll. 9-11).

**[0037]** A first class object in a database is an element whose identity is independent of all other elements. Thus, even if the first class object’s attributes change, the element persists. A “first-class Java object handle” as taught in Macdonald is a format standardization convention manipulating argument types to be passed to a function. Since the Java handle of Macdonald is formed in response to underlying arguments, it is not independent and does not read on a “first class object in a database” as claimed.

**[0038]** As shown above, the combination of Becker and Macdonald does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

### **Based upon Becker and Hornick**

**[0039]** The Examiner rejects claims 13-19 under 35 U.S.C. § 103(a) as being unpatentable over Becker in view of Hornick. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

**[0040]** As noted above, Becker does not disclose all of the claimed elements and features of the independent claims. Becker fails to disclose a key value and a data set as in the instant claims, and Hornick fails to remedy the deficiencies. Accordingly, Applicant asks the Examiner to withdraw the rejection of these claims.

**[0041]** As shown above, the combination of Becker and Hornick does not disclose all of the claimed elements and features of these claims. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

### **Dependent Claims**

**[0042]** In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

## Conclusion

**[0043]** All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action.** Please call/email me or my assistant at your convenience.

Respectfully Submitted,

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